PB-300 / 360

USER'S MANUAL

Sunpower (UK) Ltd
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SPECIFICATION : PB-300

MODEL		PB-300P/N-12	PB-300P/N-24
OUTPUT	BOOST CHARGE VOLTAGE	14.4V	28.8V
	FLOAT CHARGE VOLTAGE	13.6V	27.2V
	VOLTAGE ADJUSTABLE RANGE	13 ~ 14.7V	26 ~ 28.8V
	RECOMMENDED BATTERY CAPACITY(AMP HOURS)(Note 5)	80 ~ 200Ah	40 ~ 125Ah
	BATTERY TYPE	Open & Sealed Lead Acid	
	OUTPUT CURRENT(max.)	20.85A	10.5A
	CONTINUOUS OUTPUT CURRENT (Typ.) (Note 6)	12.5A	6.25A
INPUT	VOLTAGE RANGE	90 ~ 132VAC / 180 ~ 264VAC selected by switch	
	FREQUENCY RANGE	47 ~ 63Hz	
	EFFICIENCY (Typ.)	85%	86%
	POWER FACTOR (Typ.)	>0.65 (with P type) at 230VAC	
	AC CURRENT (Typ.)	6A/115VAC 3A/230VAC	
	INRUSH CURRENT (Typ.)	COLD START 60A	
	LEAKAGE CURRENT	<3.5mA / 240VAC	
PROTE-CTION	OVER LOAD	90 ~ 110% rated output current	
		Protection type : Constant current limiting, recovers automatically after fault condition is removed	
	REVERSE POLARITY	By internal fuse	
	OVER VOLTAGE	15 ~ 17V	30 ~ 35V
		Protection type : Shut down o/p voltage, re-power on to recover	
	OVER TEMPERATURE	Protection type : Automatically derate charge current until zero	
FUNCTION	REMOTE CONTROL (CN5)	Open: Normal work Short: Stop Charging	
ENVIRO-NMENT	WORKING TEMP.	-10 ~ +40℃(Refer to output load derating curve)	
	WORKING HUMIDITY	20 ~ 90% RH non-condensing	
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH	
	TEMP. COEFFICIENT	±0.05%/℃ (0 ~ 45℃)	
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes	
SAFETY & EMC (Note 4)	SAFETY STANDARDS	EN60335-2-29 CB Approved by TUV	
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC	
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC	
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B	
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3 (only P type)	
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, Light industry level, criteria A	
OTHERS	MTBF	115.8Khrs min. MIL-HDBK-217F (25℃)	
	DIMENSION	253*135*48.5mm(L*W*H)	
	PACKING	1.45Kg; 6pcs/9.7Kg/0.93CUFT	
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. 5. This is Mean Well's suggested range. Please consult your battery manufacturer for their suggestions about maximum charging current limitation. 6. Test condition is at 25℃, charging current will change under different temperature.		

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SPECIFICATION : PB-360

MODEL		PB-360P/N-12	PB-360P/N-24
OUTPUT	BOOST CHARGE VOLTAGE	14.4V	28.8V
	FLOAT CHARGE VOLTAGE	13.6V	27.2V
	VOLTAGE ADJUSTABLE RANGE	13 ~ 14.7V	26 ~ 28.8V
	RECOMMENDED BATTERY CAPACITY(AMP HOURS)(Note 5)	80 ~ 200Ah	40 ~ 125Ah
	BATTERY TYPE	Open & Sealed Lead Acid	
	OUTPUT CURRENT(max.)	24.3A	12.5A
INPUT	VOLTAGE RANGE	90 ~ 132VAC / 180 ~ 264VAC selected by switch	
	FREQUENCY RANGE	47 ~ 63Hz	
	EFFICIENCY (Typ.)	85%	86%
	POWER FACTOR (Typ.)	>0.65 (with P type) at 230VAC	
	AC CURRENT (Typ.)	7A/115VAC 3.5A/230VAC	
	INRUSH CURRENT (Typ.)	COLD START 60A	
	LEAKAGE CURRENT	<3.5mA / 240VAC	
PROTE-CTION	OVER LOAD	90 ~ 110% rated output current	
		Protection type : Constant current limiting, recovers automatically after fault condition is removed	
	REVERSE POLARITY	By internal fuse	
	OVER VOLTAGE	15 ~ 17V	30 ~ 35V
		Protection type : Shut down o/p voltage, re-power on to recover	
	OVER TEMPERATURE	Protection type : Automatically derate charge current until zero	
FUNCTION	REMOTE CONTROL (CN5)	Open: Normal work Short: Stop Charging	
ENVIRO-NMENT	WORKING TEMP.	-20 ~ +60℃(Refer to output load derating curve)	
	WORKING HUMIDITY	20 ~ 90% RH non-condensing	
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH	
	TEMP. COEFFICIENT	±0.05%/℃ (0 ~ 45℃)	
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes	
SAFETY & EMC (Note 4)	SAFETY STANDARDS	EN60335-2-29 CB Approved by TUV	
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.5KVAC	
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms/500VDC	
	EMI CONDUCTION & RADIATION	Compliance to EN55022 (CISPR22) Class B	
	HARMONIC CURRENT	Compliance to EN61000-3-2,-3 (only P type)	
	EMS IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11; ENV50204, EN55024, Light industry level, criteria A	
OTHERS	MTBF	115.8Khrs min. MIL-HDBK-217F (25℃)	
	DIMENSION	253*135*48.5mm(L*W*H)	
	PACKING	1.5Kg; 6pcs/10Kg/0.93CUFT	
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. 5. This is Mean Well's suggested range. Please consult your battery manufacturer for their suggestions about maximum charging current limitation.		

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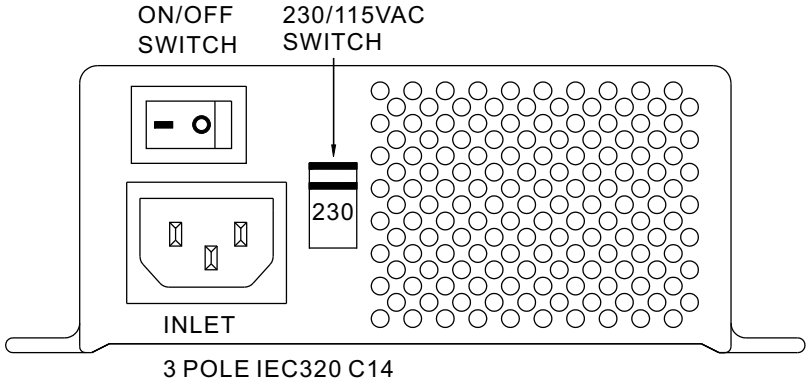
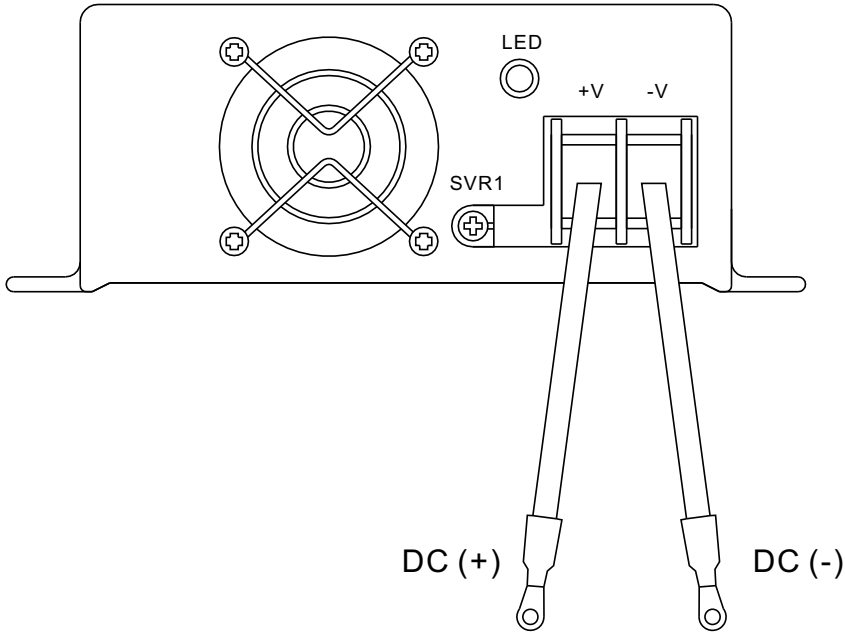
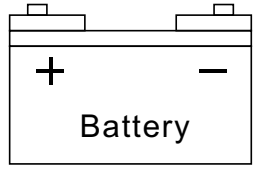


Battery Connection



⚠ Warning

Please make sure the polarity of the battery is connected correctly!



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Assembly Procedure:

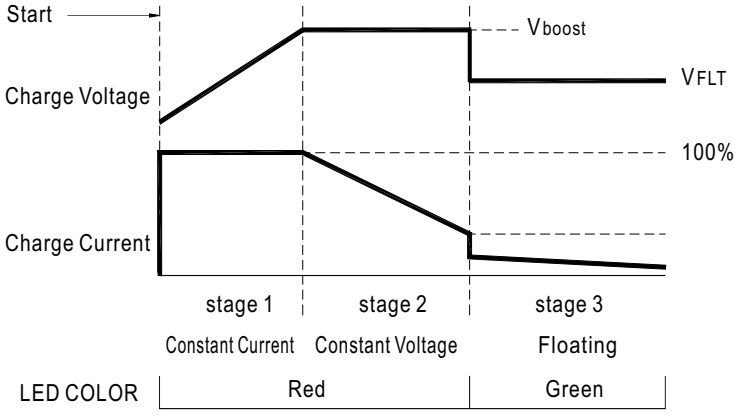
1. Make sure the charger is shut off and choosing suitable wires to connect the charger and batteries based on the rating of charging current. The polarity must be correct: charger output (+) should be connected to the (+) terminal of batteries and charger output (-) should be connected to the (-) terminal.
   In no times should the (+) and (-) be short together or the charger and batteries will be damaged.
2. Select the correct input voltage range between 115VAC and 230VAC. The selecting switch is preset at 230VAC in the factory.
3. Set the ON/OFF(0/**—**) power switch to ON(**—**) and check whether the operation of LED is correct (red : charging; green : battery is full).

Notes On Operation:

1. The charger is only suitable for "lead-acid" batteries.
2. The charger should be assembled in the place with good ventilation and low moisture. Exposure to the rain or snow is strictly prohibited.
3. Wires connecting between the charger and batteries should be as short as possible since the high voltage drop on the wires will increase the time required to fully charge the batteries.
4. Make sure the charging voltage and charging current are suitable for the batteries you are using.
5. If the batteries need to connect in series for charging, old batteries are not suggested to be used with new ones or the lifetime of batteries may reduce because of the unbalance charging voltage distribution on new and old batteries.
6. Please turn off the charger before connecting or disconnecting the wires.
7. The charger has a 2-year worldwide warranty, however, damages from misusing the charger will not be included in the coverage of warranty.

Status Under General Operation:

At the beginning stage of operation, the charger provides the largest current with 14.4Vdc of output voltage (for 12V batteries) to charge batteries. The LED indicator will lighten in red and the built-in fan will spin to dissipate the heat (360W only). After a period of time (probably a couple of hours, based on the capacity of batteries), the charging current will decrease gradually. After reaching 10% of its maximum value, the charger will go into "floating-charge" stage. The fan will stop spinning, charging voltage will decrease to 13.6Vdc, and the LED indicator will turn to green. The relationship between charging current and charging voltage for each operation stage are shown in the curves below:

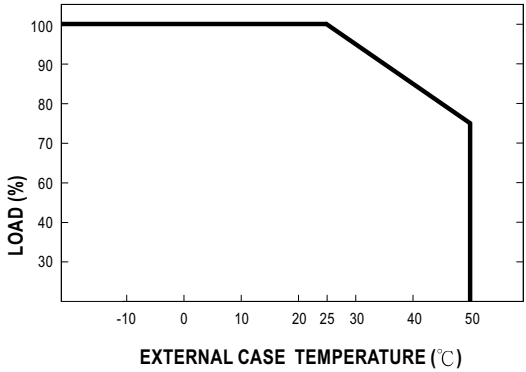


State	PB-300/360-12	PB-300/360-24
Vboost	14.4V	28.8V
VFLT	13.6V	27.2V

NOTE: Output voltage of the charger (V_{FLT}) can be adjusted through SVR1 without connecting the batteries and this adjustment will change the value of V_{boost} at the same time. For example, if originally V_{FLT} is 13.6V and V_{boost} is 14.4V, after adjusting V_{FLT} to 13.2V under no-load condition, V_{boost} will also reduce to 14V. So, please consult the manufacturer of batteries about the suitable charging voltage before make any adjustment.

Charging Current And Ambient Temperature

1.The charging current of PB-300 will reduce when the ambient temperature goes up. Please refer to the derating curve shown as below:



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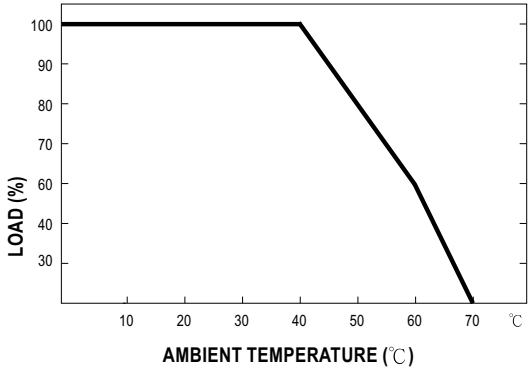
2.Below the ambient temperature of 40℃, PB-360 can provide the maximum charging current to the batteries. If the ambient temperature is higher than 40℃, the output current of PB-360 will decrease automatically. Please refer to the derating curve shown as below:



Selection Of Output Connection:

Please choose wires with suitable diameter of its cross section based on the current rating. Please refer to the following table for the information of some frequently used wires. Using red wires to connect the (+) terminals and black ones for (-) terminals is highly recommended. (Black wires for grounding is a usual practice in electrical applications.)

AWG	CROSS SECTION(mm^2)	Max.Current(A) UL1015(600V 105℃)
10	5.262	35
12	3.309	22
14	2.081	12
16	1.309	8
18	0.823	6
20	0.517	4

Suggested Battery Capacity:

1.It will not have any problem if the capacity of batteries larger than the suggested value. It just takes more time to make the batteries fully charged!

2.If you have any question about the suitable charging current for the batteries, please refer to the technical data provided by the battery manufacturers or consult the vendor of the batteries.

Model	Suggested Battery capacity
PB-300-12	60-100Ah
PB-300-24	30-60Ah
PB-360-12	80-200Ah
PB-360-24	40-125Ah

Notes On Failure Elimination

Status	Possible Reasons	Ways to Eliminate
No output voltage	Power switch is not set to ON(-)	Set the power switch to ON(-)
	Wrong polarity of the battery connection (output fuse open)	Replace the fuse
	Wrong selection of the 115/230Vac switch	Repair required. Please send it back to us or any of our distributors
Output voltage is too low	Wrong selection of the 115/230Vac switch	Choose the correct input voltage range through the 115/230Vac switch
Can't achieve the FLOAT (green light) stage after long period of charging operation	Batteries are aging or broken	Replace the batteries
	The gauge of output wire is not large enough	Choose connecting wires with suitable gauge

If you still cannot eliminate the failure situation, please consult MEAN WELL or any of our distributors

WARNING : Explosive gases. prevent flames and sparks, Provide adequate ventilation during charging.
Disconnect the supply before making or breaking the connections to the battery.
Against recharging non-rechargeable batteries.

Caution : (1)Temperature of the case will be high during the charging operation.
(2)If the AC input terminal does not connect to F.G. or the ground, then the case should be grounded or the leakage current may harm the users while touching the case.
(3)The charger should be fixed firmly at its operation place or be mounted on a holding rack for extra support. Reserved space for built in is at least (325*145*55) L*W*H
(4)During charging, the battery must be placed in a well ventilated area.